CAMPBELL HAUSFELD
BUILT TO LAST

OCTOBER 1999
MSDS: 113

MATERIAL SAFETY DATA SHEET

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATIONS STANDARD, 29 CFR 1910.1200 AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499.
STANDARD SHOULD BE CONSULTED FOR SPECIFIC REQUIREMENTS

SECTION I (IDENTIFICATION)

MANUFACTURER: CAMPBELL HAUSFELD **EMERGENCY PHONE:** (800) 746-5641

PRODUCT NAME: E6010, E6011, E6012, E6013, E6022, E7014, E7018, E7018AC, E7024, WE100000AJ,WE100200AV,WE100300AV WE101000AJ,WE101200AV,WE101500AV,WE101700AV,WE101800AV,WE102500AV,WE102700AV,WE103001AJ,WE103501AJ,WE104000AJ, WE104200AV,WE104500AV,WE104700AV,WE105000AJ,WE105501AJ,WE106000AJ,WE106200AJ,WE106500AJ,WE106700AV

PRODUCT CLASSIFICATION: Covered Electrode for Shielded Metal Arc Welding (SMAW).

SECTION II (HAZARDOUS INGREDIENTS/IDENTITY INFORMATION)

IMPORTANT: This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section V. The term "Hazardous" in "Hazardous Ingredients" should not be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200). The chemicals or compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.

		EXPOSURE LIMIT (mg/m3)		
INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH TLV	Percent of ingredients (by weight)
Iron	7439-89-6	10 (as Fe)	5 (as Fe)	30 - 60
Calcium Carbonate	1317-65-3	5	10	1 - 5
Titanium Dioxide	13463-67-7	10	10	5 - 15
Sodium Silicate	1344-09-8	n.a.	5	1 - 5
Potassium Silicate	1312-76-1	n.a.	5	1 - 5
Chromium #	7440-47-3	0.5	0.5	30 - 50
Manganese#	7439-96-5	1	1	1 - 5
Flurospar	7789-75-5	2.5 (asF)	2	2.5 (asF)

SECTION III (PHYSICAL DATA) - NOT APPLICABLE

SECTION IV (FIRE AND EXPLOSION HAZARD DATA)

Non-Flammable: Welding and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding. These products as shipped are nonhazardous, nonflammable, non explosive, and non reactive.
Rating under National Fire Protection 704: Health, 0: Flammability, 0: Reactivity, 0.

SECTION V (REACTIVITY DATA)

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure, and the electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and the amount of ventilation, position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.)

When the electrode is consumed, fume and gas decomposition products generated are different in percent and form from ingredients listed in Section II. Fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from volatilization, reaction or oxidation of materials in Section II, plus those from the base metal and coating, etc., as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society). Reasonable expected fume constituents of fume could include: complex oxides of iron, manganese, silicon, sodium, and potassium. Fluorides, nickel,

and chromium oxides may also be present. The table on page 2 lists reasonable expected fumes that may be generated:

Substance	CAS No.	OSHA PEL	ACGIH TLV
Iron Oxide	1309-37-1	10	5
Manganese Dioxide #	1313-13-9	1	1
Silica (AMORPHOUS)	60676-86-0	0.1	0.1
Fluorides	----------	2.5 (as F)	2.5 (as F)
Nickel (soluble) #	7440-02-0	0.1 (an Ni)	0.1 (an Ni)
Chromium Oxide	----------	0.5 (as Cr)	0.5 (as Cr)
Chromium (INSOLUBLE)	----------	CL (as CrO^3)	0.05 (as Cr VI)
Titanium Dioxide	13463-67-7	0.1 5R	10

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. Monitor fume levels. The fume limit for Cr VI (0.05 mg/m³) may be reached before general welding fumes of 5 mg/m³ is reached. One recommended way to determine the composition and quantity of fumes and gas to which workers are exposed is to take an air sample inside the welder's helmet if worn, or in the worker's breathing zone (see ANSI/AWS F1.1 available from the "American Welding Society," P.O. Box 351040, Miami, FL 33135).

SECTION VI (HEALTH HAZARD DATA)

Threshold Limit Value: The ACGIH and OSHA have set the exposure level for welding fumes at 5 mg/m³. The **ACGIH 1984-85** preface states: **"TLV-TWA"** should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section V for specific fume constituents which may modify the **TLV**.

Effects of Over Exposure: Electric arc welding may create one or more of the following health hazards:
FUMES AND GASES can be dangerous to your health. **PRIMARY ROUTES OF ENTRY** are the respiratory system, eyes, and/or skin.
PREEXISTING respiratory or allergic conditions may be aggravated in some individuals. **SHORT TERM (ACUTE) OVEREXPOSURE** to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes. **IRON, IRON OXIDE, MANGANESE** - Remove from overexposure and apply artificial respiration if needed. **FLUORIDES** - Fluoride compounds produced may cause eye and skin burns, pulmonary edema bronchitis. **NICKEL, NICKEL OXIDE** - Metallic taste, nausea, tightness in chest, fever, allergic reactions. **CHROMIUM** - Inhalation of chromium can cause irritation of nasal membranes and skin. **LONG TERM (CHRONIC) OVEREXPOSURE** may lead to siderosis (iron deposits in lungs) and is believed by some investigators to affect pulmonary functions. **PRIMARY ROUTE OF ENTRY** is the respiratory system. **IRON, IRON OXIDE** - Long term overexposure to fumes can cause deposits of iron in the lungs (siderosis). Lungs will clear in time when exposure to iron and its compounds ceases. **FLUORIDES** - Overexposure to fluorides can cause serious bone erosion. **MANGANESE** - Long term exposure may lead to "Manganism". Central nervous system is affected and symptoms include muscular weakness and tremors. Exposed workers should get quarterly medical examinations for manganism. **CHROMIUM** - Chromium VI is listed as a human carcinogen on **IARC** and **NTP** lists and is required by **OSHA** to be considered carcinogenic. **NICKEL, NICKEL OXIDE** - Long term overexposure to nickel products may cause lung fibrosis or pneumonoconiosis. Nickel is listed as a human carcinogen on **IARC** and **NTP** lists and is required by **OSHA** to be considered carcinogenic. **SILICON DIOXIDE** - Silicon dioxide is listed as a probable carcinogenic to humans. **WELDING FUMES** - Welding fumes (not otherwise classified) are considered to be carcinogenic defined with no further categorization by **NIOSH. ARC RAYS** can injure eyes. **ELECTRIC SHOCK** can kill. See Section VII.
Emergency & First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by The American Red Cross. In case of electrical shock, turn off power prior to removal from exposure area and administration of first aid.

- INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, begin artificial respiration. If no detectable pulse, begin external heart massage.
- SKIN: Wash affected area with soap and water.
- EYES: Flush with large amounts of fresh water for at least 15 minutes.
- INGESTION: Seek medical attention.

WARNING: This product contains or produces a chemical known to the State of California to cause cancer. (California Health & Safety Code 25249.5 et seq.)

Carcinogenicity	NTP	NIOSH	IARC Monographs	OSHA Regulated
When Present	Ni, Cr	Welding Fumes (n.o.c.)	Cr. Ni	Cr

Carcinogenicity

Chromium(with the exception of metallic chromium and chromium (III) must be considered as a carcinogens under OSHA (29 CFR 1910.1200) Welding fumes must be considered as possible carcinogens under OSHA (29 CFR 1910.1200).

CALIFORNIA PROPOSITION 65: This product contains a chemical which is known to the State of California to cause cancer. Hexavelant chromium (Cr VI) is listed under Propsition 65. Hexavelant chromium may be generated during welding.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING & USE/APPLICABLE CONTROL MEASURES

Read & Understand the manufacturers instruction and the precautionary label on the product. See American National Standard Z49.1: Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, DC 20402 for more detail on any of the following.
VENTILATION: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below PEL/TLV in the workers breathing zone and general area. Train the welder to keep his head out of the fumes.
RESPIRATORY PROTECTION: Use NIOSH approved or equivalent fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventillation does not keep exposure below PEL/TLV
EYE PROTECTION: Wear helmet or use faceshield with filter lens. As a rule of thumb begin with shade Number 14. Adjust if needed by selecting the next lighter and/or darker shade number. Provide protective screens and flash goggles, if necessary, to shield others.
PROTECTIVE CLOTHING: Wear hand, head and body protection which help tp prevent injury from radiation, sparks and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and protective face shield, and may include arm protectors, aprons,hats shoulder protection as well as dark nonsynthetic clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

PROCEDURE CLEANUP OF SPILLS OR LEAKS: Not Apllicable.
WAST DISPOSAL: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposible container or liner in an environmentally acceptable manner, in full compliance with Federal, State &Local Regulations.
SPECIAL PRECAUTIONS: IMPORTANT: Maintain exposure below thte PEL/TLV. Use industrial hygene monitoring to ensure that your use of this material does not create exposures which exceed PEL/TLV. Always use exhaust ventillation. Refer to the following sources for important additional information. ANSI Z49.1 The American Welding Society, P.O. Box 351040, Miami FL 33135 - OSHA (29CFR1910) U.S. Department of Labor, Washington, DC 20210.

WMS believes this data to be accurate and to reflect qualified expert opinion regarding current research. However, WMS cannot make any express or implied warranty as to this information.